# MilkGuard

## User Manual

V4.2 06-2007

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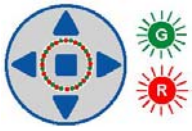
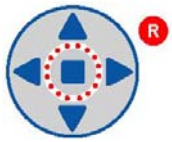
*DairyCheq is a brand name of Meko Holland B.V.*

## Index symbols

| | |
|---|---|
| | Buzzer on |
| | Buzzer on / off |
| | Buzzer off |
| | Enter button |

| | |
|---|---|
|  | LED's blinking green / red |
| | LED's blinking green |
| | LED's continuous green |
| | LED's blinking red |
|  | LED's continuous red |

# Preface

Thank you for purchasing the DairyCheq MilkGuard and the confidence you have in our Company. Optimum performance, high reliability and a long life are the design requirements applied to all DairyCheq products. The DairyCheq MilkGuard has been designed first and foremost for the universal use on various types and sizes of milk cooling tanks for monitoring the milk storage.

This manual has been made for the end-user of the DairyCheq MilkGuard. The producer instructions are included in this manual.
The manual aims to assist you, the end-user, in using your DairyCheq MilkGuard. The quick reference card included in the appendix is a summary of the hands-on operation, while this manual provides more substantial information on the operation and maintenance of the DairyCheq MilkGuard, as well as the safety instructions that come with it.

*Please remember:*
- *Display the Quick Reference Card DairyCheq MilkGuard clearly visible in the vicinity of the MilkGuard*
- *Keep this producer manual in a dry location in the vicinity of the MilkGuard for quick reference.*

**Table of Contents:**


H1 Introduction ..... 5
H2 Safety ..... 7
2.1 General ..... 7
2.2 Warnings ..... 9
2.2.1 Monitoring the temperature ..... 10
2.2.2 Monitoring the agitator ..... 13
2.2.3 Switch-on alarm ..... 15
2.2.4 General conditions ..... 16
2.2.5 Tank cleaning indication ..... 17
2.2.6 Pipe cleaning indication ..... 19
2.2.7 Monitoring the overall operation ..... 21
2.2.8 Power Interruption ..... 24
2.2.9 Remaining alarms ..... 24
2.3 Information ..... 24
2.3.1 Data last cleaning process ..... 25
2.3.2 Data tank load ..... 25
2.3.3 Data milking time ..... 25
2.3.4 CRITICAL alarms of the present tankload ..... 26
2.3.5 All alarms in the last month ..... 26
H3 Safety ..... 27
H4 Transport and storage ..... 27
H5 Operation ..... 28
5.1 Information screens ..... 28
5.1.1 Data latest cleaning ..... 28
5.1.2 Data tank load ..... 28
5.1.3 Time information ..... 29
5.1.4 Data milking times ..... 29
5.1.5 CRITICAL alarms of the present tank load ..... 29
5.1.6 All alarms in the latest month ..... 29
5.2 Changing the producer preferences ..... 30
5.3 Tank collector driver ..... 32
H6 Maintenance ..... 33
H7 Troubleshooting ..... 33
H8 Scrap ..... 33


**Appendices:**


A. Producer preference settings ..... 35
B. Quick reference card MilkGuard ..... 36
C. Technical specifications ..... 37

# H1 - Introduction

The DairyCheq MilkGuard has been designed to monitor the storage of milk on the farm in a milk cooling tank. No matter what type or size the tank may have, the DairyCheq MilkGuard will monitor the storage conditions of the milk. The DairyCheq MilkGuard is a tool for the producer to help him supply consistently high-quality milk from his farm.
It is also an excellent tool for the buyer of the milk (the dairy company) to realise the highest possible quality of the milk collected.

The DairyCheq MilkGuard monitors, among other things, the temperature conditions of the milk during storage, the agitation process in the tank, as well as a number of cleaning conditions during the tank and pipe cleaning process.

First and foremost the DairyCheq MilkGuard has been designed to monitor the storage of milk in a milk cooling tank on the farm. The area must be clean and dry. Do not clean the DairyCheq MilkGuard using running water or high-pressure water.
Any use of the DairyCheq MilkGuard, other than described in this manual, is strictly prohibited due to possible unforeseen hazardous situations.

The DairyCheq MilkGuard is designed for indoor use only. The area in which the DairyCheq MilkGuard is being used must be properly ventilated, clean and free of dust, caustic and corrosive gases and substances, with an air humidity between 10 and 90% and a temperature between 14ºF and 104ºF. Powersupply must also meet the specifications shown in appendix C at any time.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

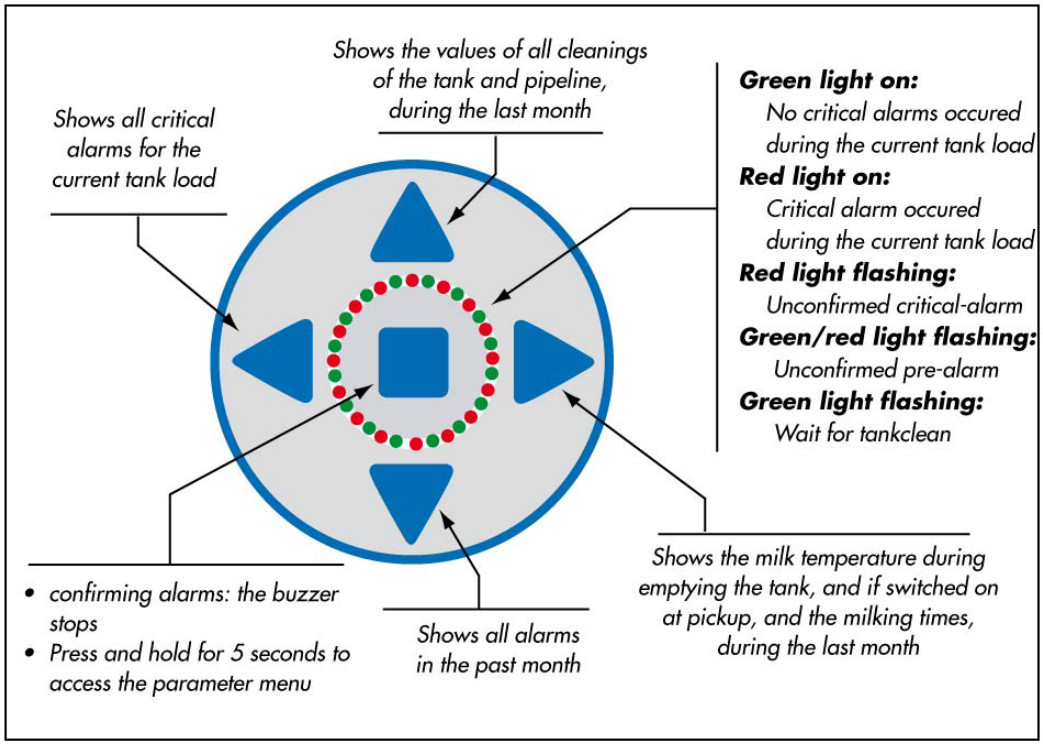
The manufacturer will not assume any liability for adjustments or modifications made to the operation, principle or controls of the DairyCheq MilkGuard. The person(s) making such changes will be fully responsible for the consequences of their actions.
Any form of claim under warranty and manufacturer liability is excluded if all or any of the above terms and conditions are not adhered to.

***The producer will remain responsible for the storage of milk in the tank and consequently for the quality of the milk at all times. That is the reason why you should appropriately act on every fault message from the DairyCheq MilkGuard, check the temperature of the milk after every milking cycle, and visually inspect the cleanliness of the inside of the tank after every cleaning cycle.***

# H2 - Operation

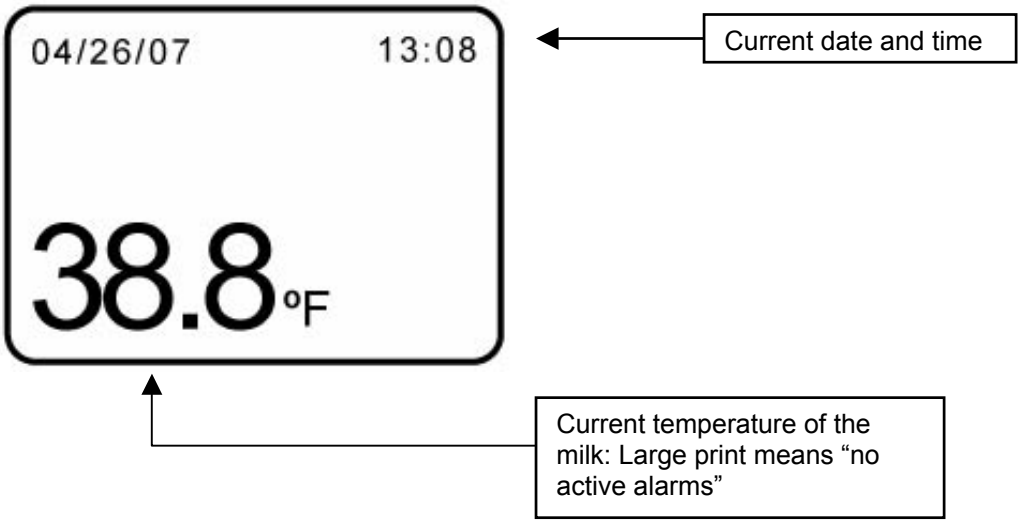
## 2.1 - General:

**Key functions:**

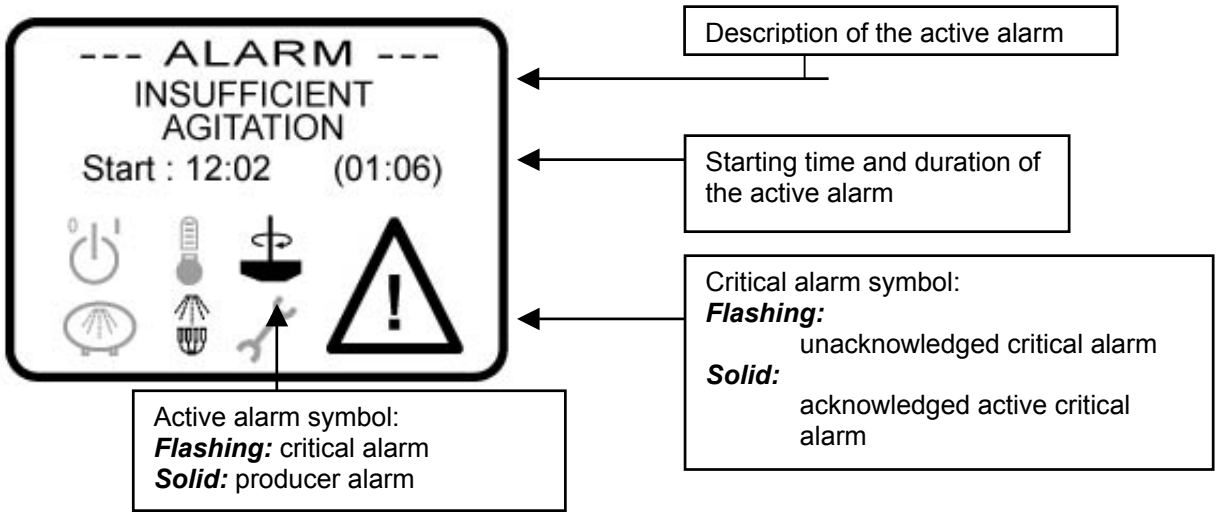

Shows the values of all cleanings of the tank and pipeline, during the last month
Shows all critical alarms for the current tank load
Green light on:
No critical alarms occured during the current tank load
Red light on:
Critical alarm occured during the current tank load
Red light flashing:
Unconfirmed critical-alarm
Green/red light flashing:
Unconfirmed pre-alarm
Green light flashing:
Wait for tankclean
confirming alarms: the buzzer stops
Press and hold for 5 seconds to access the parameter menu
Shows all alarms in the past month
Shows the milk temperature during emptying the tank, and if switched on at pickup, and the milking times, during the last month

**Display structure:**

Display structure when no alarms are activated:

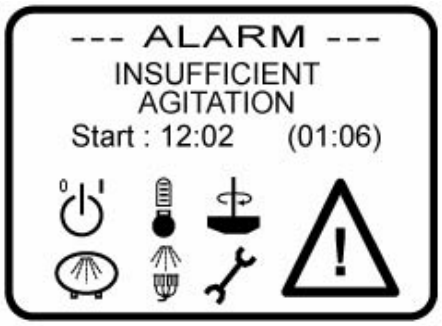



Display at activated, unacknowledged alarm:



## 2.2 - Warnings:

The alarms on the screen are displayed in the following manner:




The MilkGuard warns for several incorrect situations. The MILKGUARD splits the alarms into two main categories:

- CRITICAL ALARMS are warning for situations that could jeopardise the quality of milk.
- producer alarms, warning the producer to prevent any CRITICAL alarms.

These groups are having the following properties:

| | Display | | | LED | | |
|---|---|---|---|---|---|---|
| | Warning symbol | Alarm text | Category symbol | Colour during the alarm | Colour after the alarm | Sound during the alarm |
| CRITICAL alarm | Yes | Upper case | Flashing | Flashing red | Red | On/Off |
| Producer alarm | No | Lower case | Solid light | Flashing green/red | Green | On |

Following a CRITICAL alarm, the LED in the front will stay on in red, warning the bulk tank driver immediately on his arrival that a critical alarm has occurred during the present tank load.

The following paragraphs are about the various warnings that may occur and the action to be taken to solve the situation in each case.

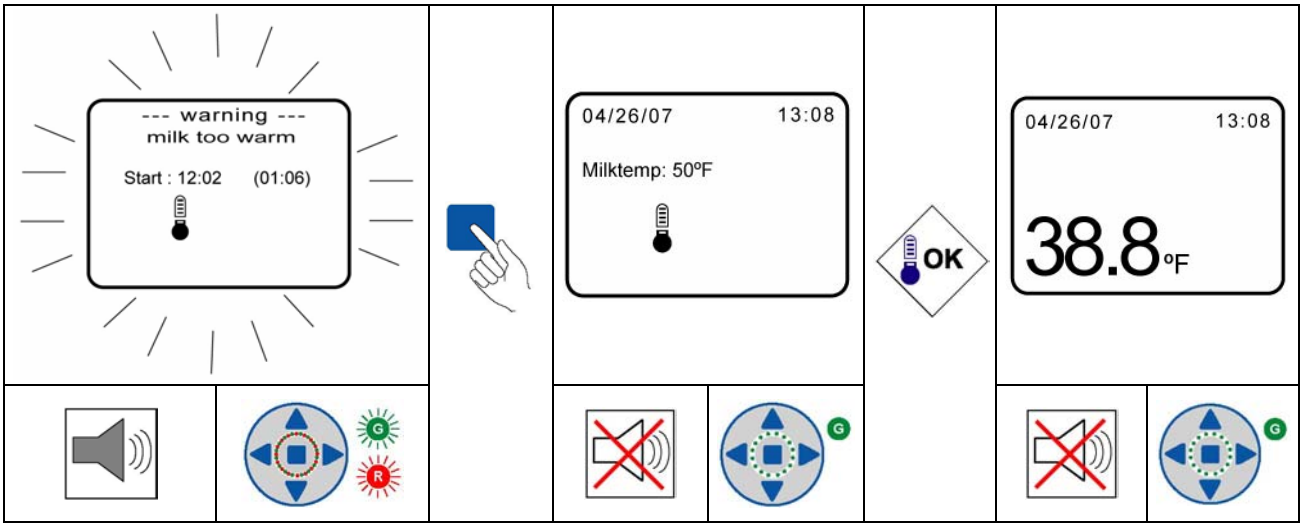
### 2.2.1 – Monitoring the temperature

The temperature symbol will not be shown as long as the temperature is within the safety range. However, the symbol will appear as soon as the temperature is rising above or falling below the safety range.
The possible alarm warnings include:

**TEMPERATURE OF THE MILK IS TOO HIGH**

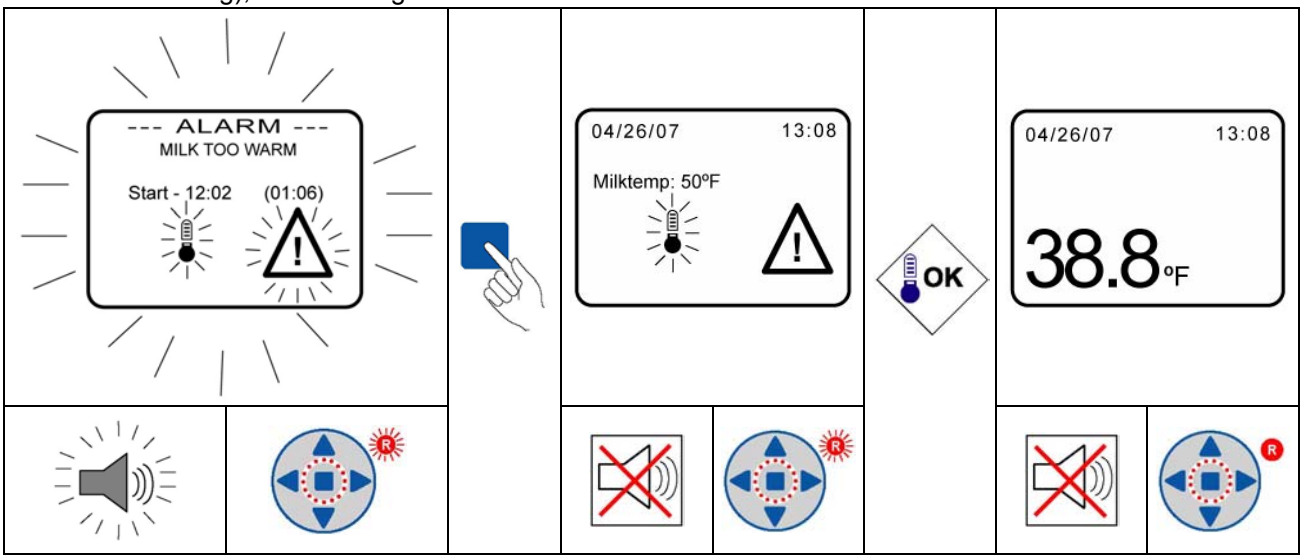
***Producer alarm[1]***

- If the temperature of the milk has been over **X[2]°F** for too long,
- or if, after milking, the MilkGuard may foresee that within the timeframe allowed the temperature of the milk will not have fallen below **X°F** (depending on the setting), the following alarm will occur:




***CRITICAL ALARM:***

- If the temperature of the milk has been over **X°F** for too long,
- or if the temperature of the milk has been over **X°C** for more than two hours after the first milking cycle or more than one hour after any subsequent milking cycle (depending on the setting), the following alarm will occur.

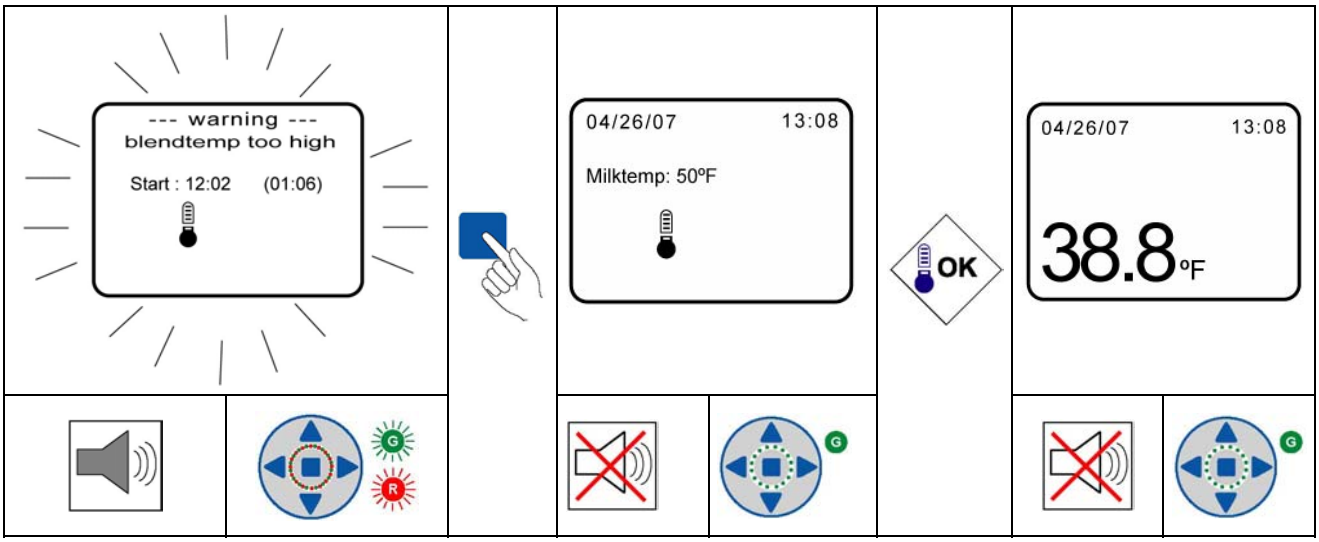



[1] If the producer alarms have been set
[2] X and Y are menu-settings, which depend on the specific user profile settings

## BLEND TEMPERATURE OF THE MILK TOO HIGH - ALARM

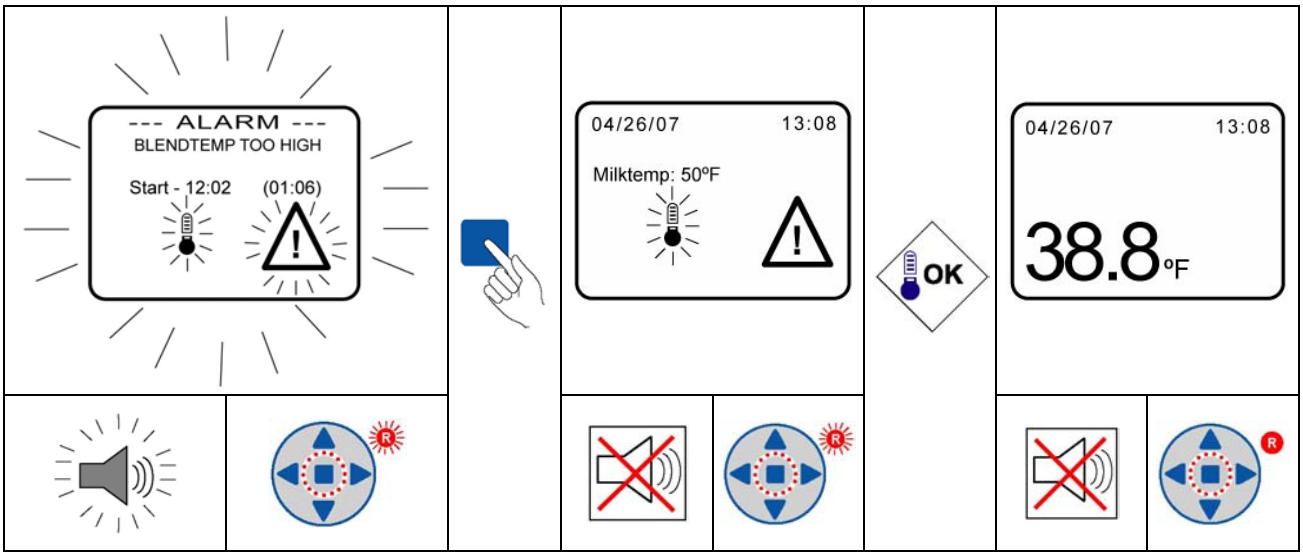
***Producer alarm*** [1]

If the blend temperature of the milk (temperature of the milk after the 1st milking cycle) has been above the value set by the ***producer*** for more than 10 minutes, the following producer alarm will occur.




***CRITICAL ALARM:***

If the blend temperature of the milk has been over **XºF** for more than **Y minutes**, the following alarm will occur

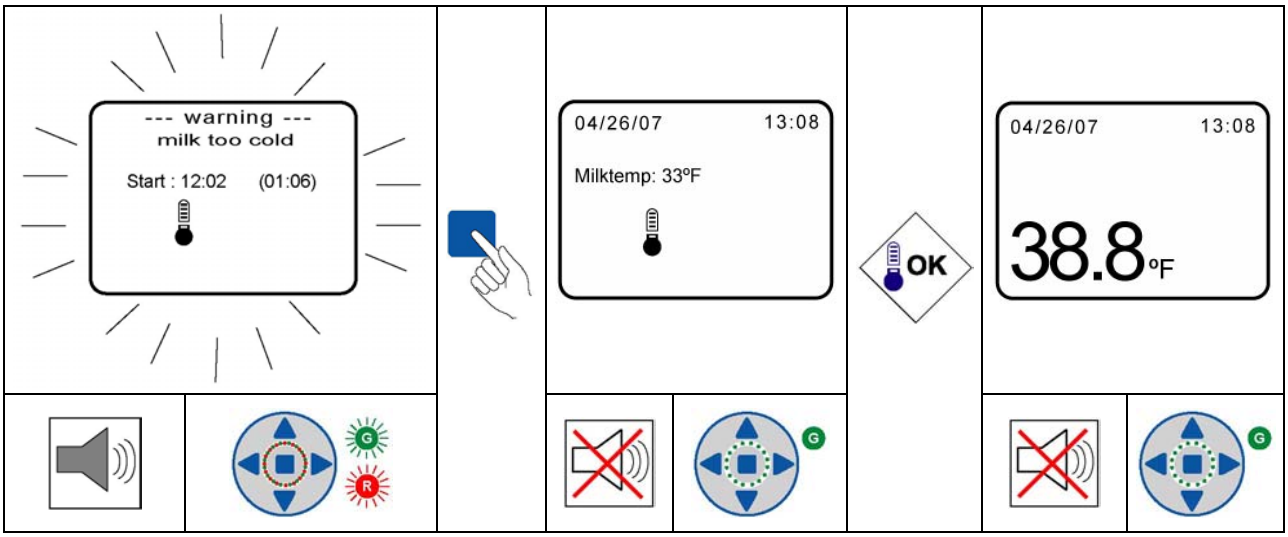



[1] If the producer alarms have been set

## LOW TEMPERATURE OF THE MILK-ALARM

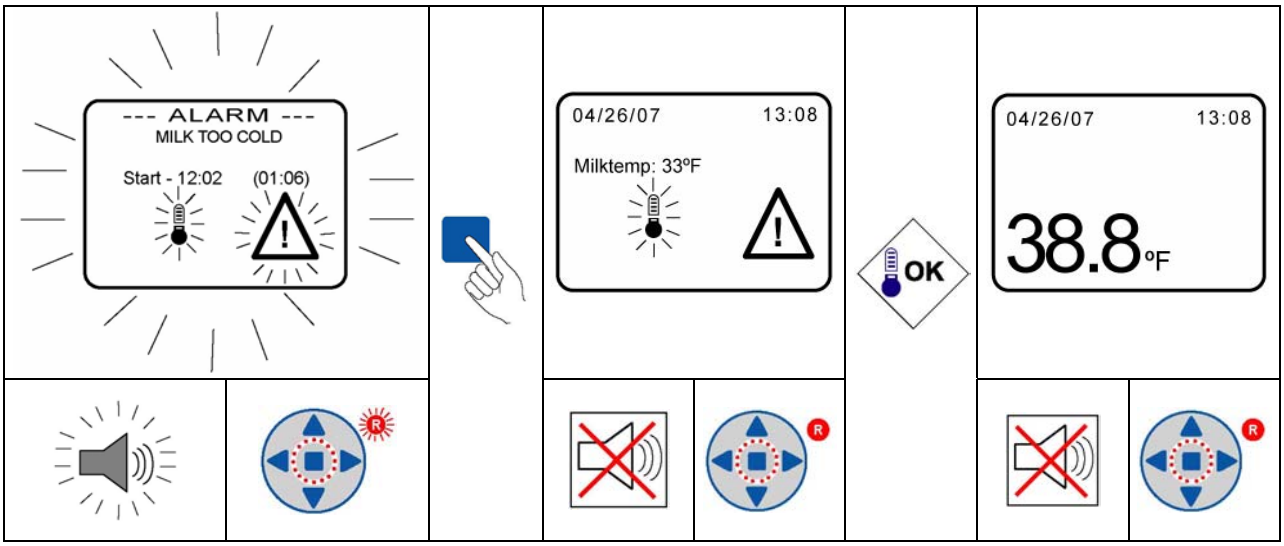
***Producer alarm*** [1]

If the temperature of the milk has been below **XºF** for more than **Y minutes**, the following producer alarm will occur.




***CRITICAL ALARM:***

If the temperature of the milk has been below **XºF** for more than **Y minutes**, the following alarm will occur.



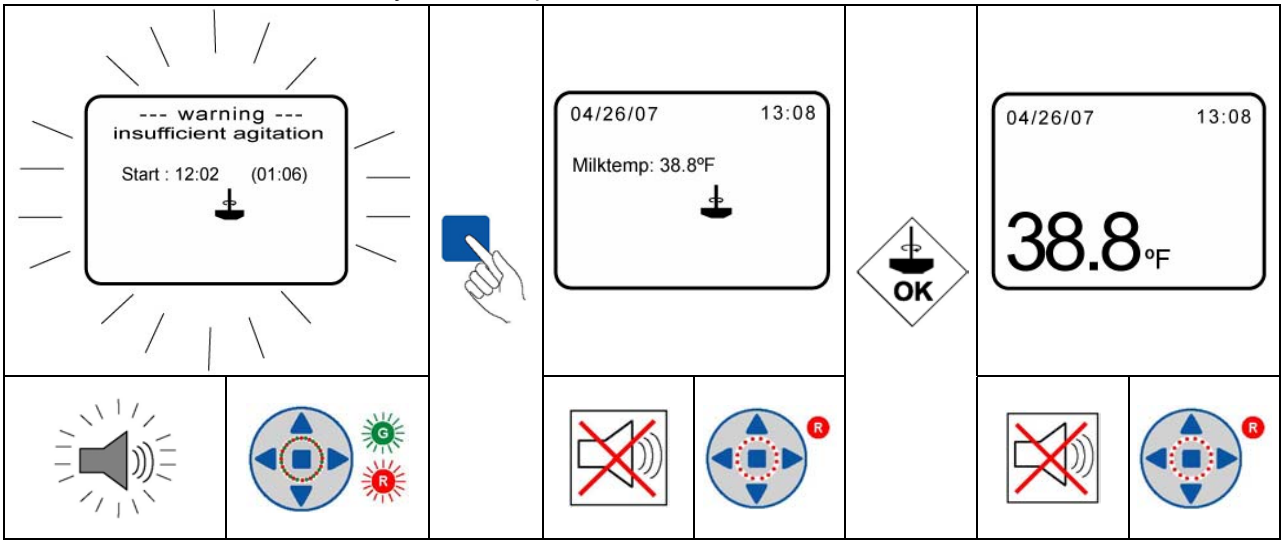

[1] If the producer alarms have been set

## 2.2.2 - Monitoring the agitator

The agitator symbol will not be shown as long as the milk is stirred to a sufficient degree. However, the symbol will appear as soon as the values are falling outside the safety range. The possible alarm warnings include:

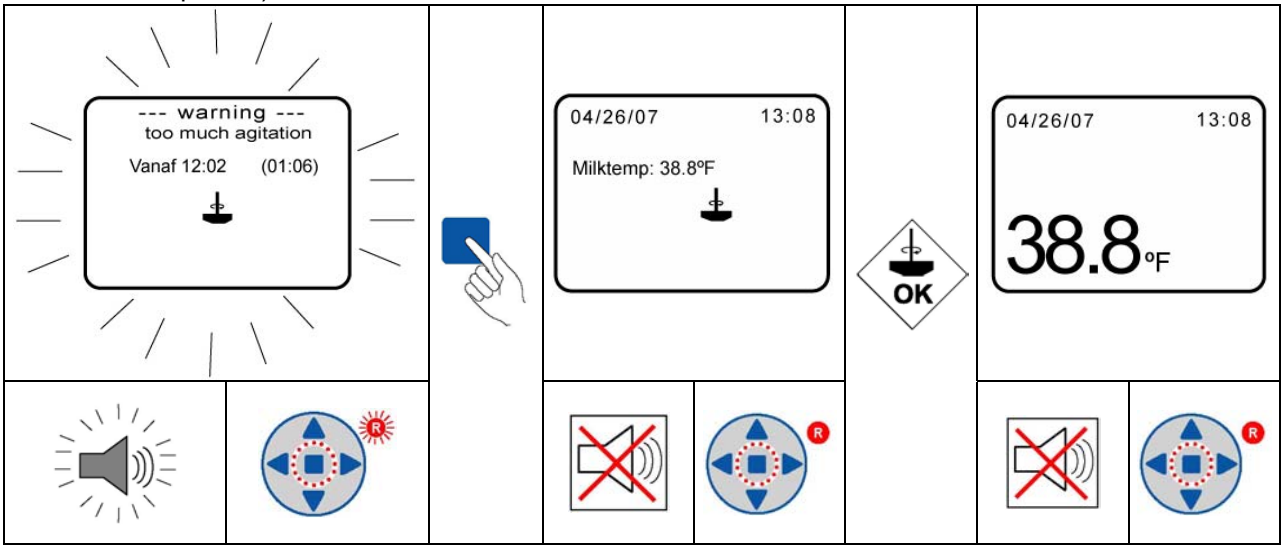
***insufficient agitation, producer alarm:***

The following alarm will occur if the temperature of the milk is below **XºF** and the agitator has not been activated within any **Y minute** period.




***too much agitation, producer alarm:***

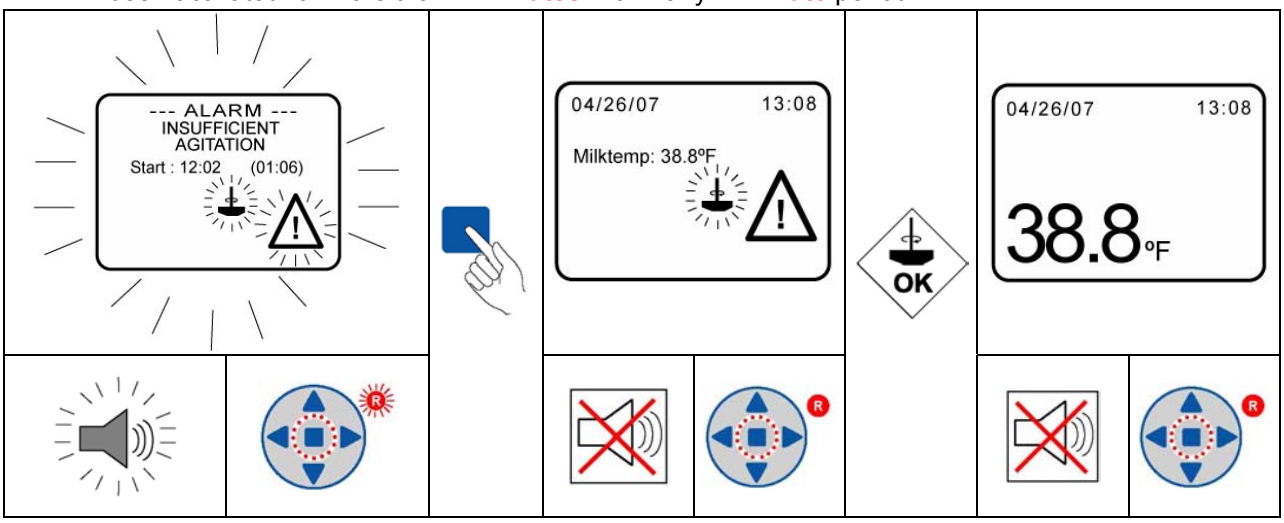
The following alarm will occur if the continuous stirring period exceeds **X hours** (unless milking has taken place[1] ).




[1] Only if a vacuum switch has been connected

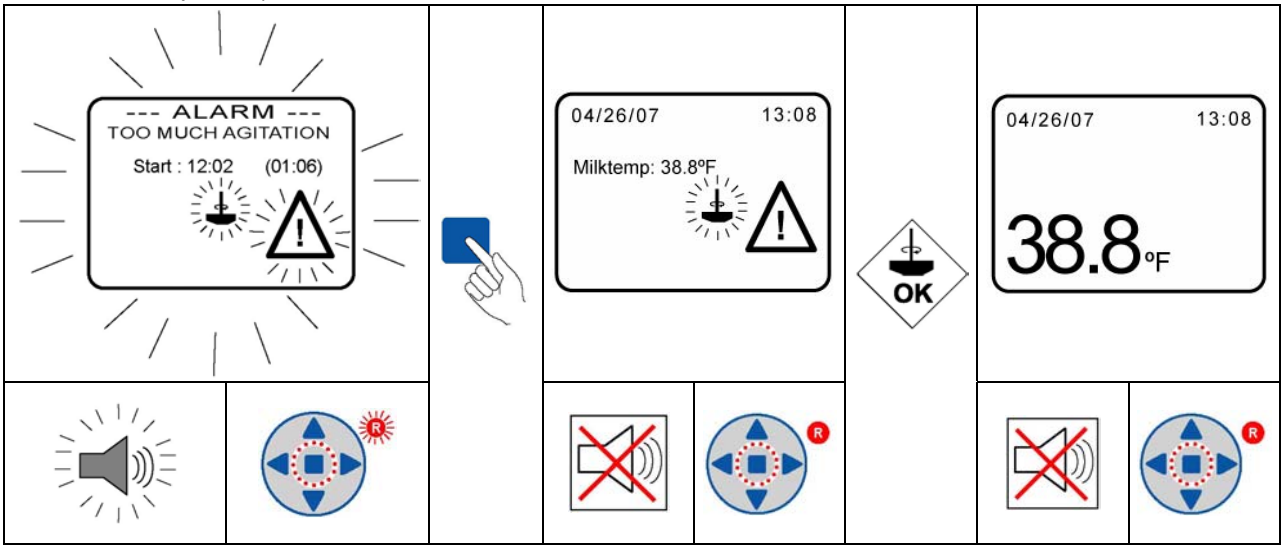
***INSUFFICENT AGATION, critical alarm:***

The following alarm will occur if the temperature of the milk is below **X°F** and the agitator has not been activated for more than **X minutes** within any **Y minute** period




***TOO MUCH AGIATION, CRITICAL alarm:***

The following alarm will occur if the continuous stirring period exceeds **X hours** (unless milking has taken place[1] ).




[1] Only if a vacuum switch has been connected

## 2.2.3 – Start cooling alarm

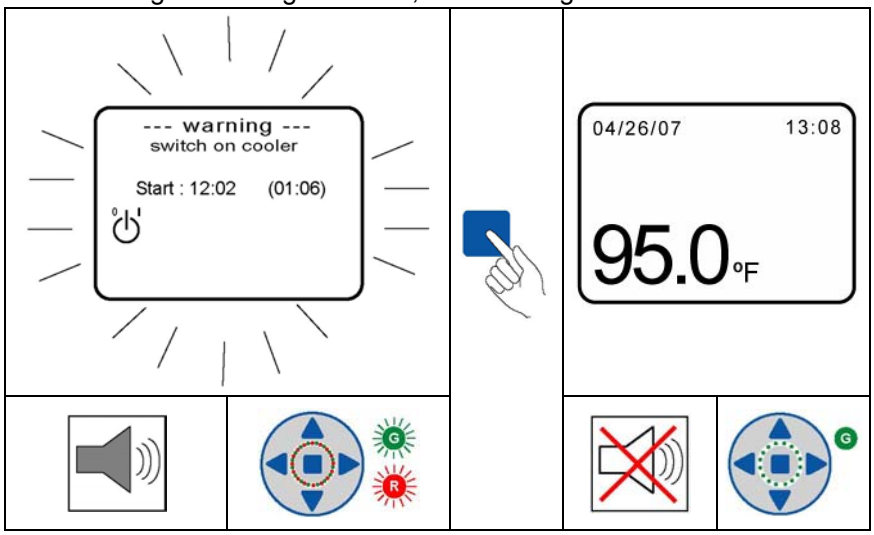
The switch-on symbol will not be shown as long as no situation has been detected where one of the components has not been switched on. However, the symbol will appear as soon as the MilkGuard detects that a component has not been switched on.
The possible alarm warnings include:

***Cooling machine off, producer alarm***

If within the producer-set period in menu 2 (default 30 minutes) following the start of the 1st milking cycle no drop in temperature has been detected and at that moment the temp. is above 57ºF, the following alarm will occur.

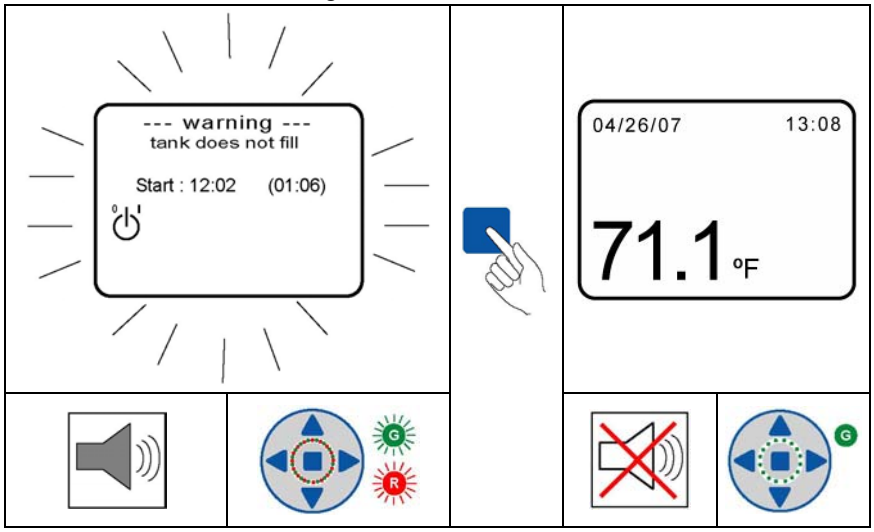
***OR***

if following the period of the above alarm, the temperature has been over **XºF** for more than 10 minutes without the agitator being activated, the following alarm will occur.




***No milk in the tank, producer alarm***

If within the producer-set period in menu 8 following the start of the 1st milking cycle no level in the tank has been detected, the following alarm will occur.

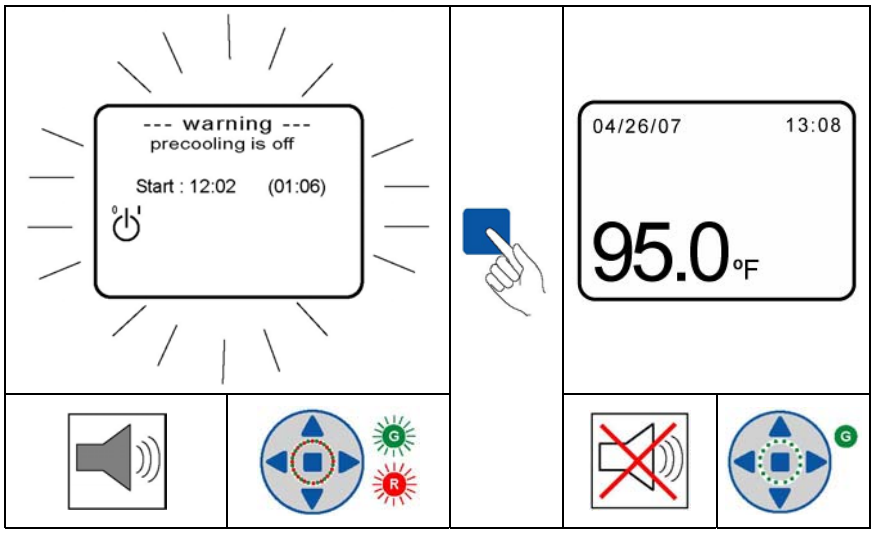


***No pre-cooling, producer alarm*** [1]

In the event of a standard MilkGuard that the producer indicated the connection of a plate cooler in menu 4 (default "off"), and after 5 minutes following the level detection at the start of the 1st milking cycle the temperature is over 80.6ºF, the following alarm will occur.

***OR***

The temperature of the pipe is higher than 80.6ºF on the moment that the milking temperature is rising above **XºF**, this alarm will occur.

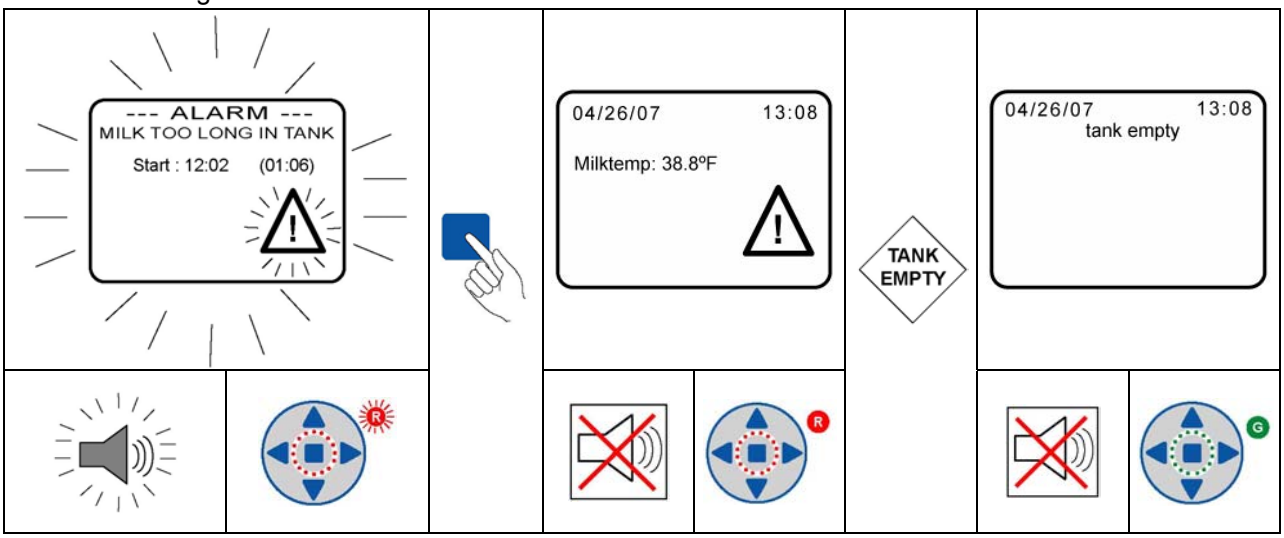



## 2.2.4 - General conditions

The tank cleaning symbol will appear as soon as a departure from the tank cleaning process has been detected. The function is warning in situations requiring attention as well as in situations that trigger an alarm.
The possible warnings include:

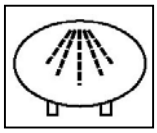
***THE MILK IS TOO LONG IN TANK:***

If the tank has not been cleared during **X hours** after the first milk entered the empty tank, the following alarm will occur.




[1] Only if the producer alarms have been set

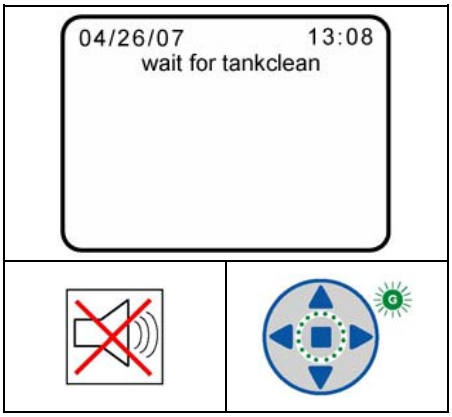
## 2.2.5 - Tank cleaning indication



The tank cleaning symbol will appear as soon as the start of the tank cleaning process has been detected. The function is warning in situations requiring attention as well as in situations that trigger an alarm.
The possible warnings include:

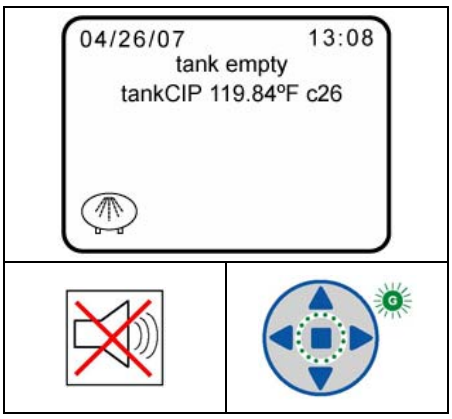
***Waiting for cleaning cycle, indication***

The following message will be shown for as long as no cleaning has been detected after the tank has been emptied:




***Sufficiently cleaned, indication***

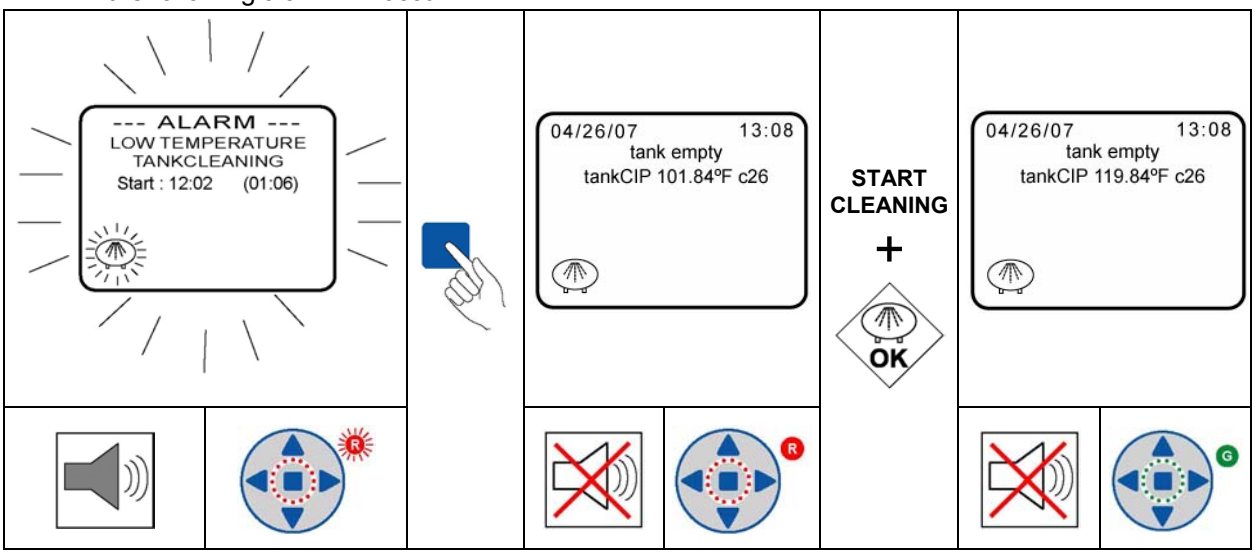
This situation will occur when during the tank cleaning process the temperature has been over **XºF** for more than **Y minutes**. With the conductivity sensor attached (optional[1]), the conductivity of the cleaning water must also be sufficient to trigger this situation.




[1] Only if a conductivity sensor has been connected

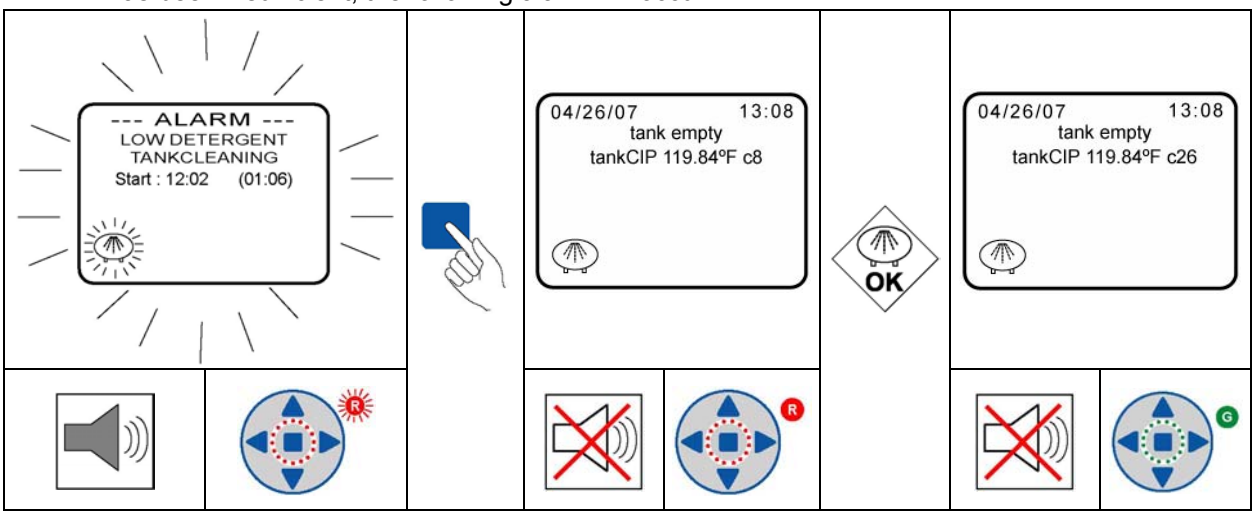
***Cleaning temperature too low***

If during the tank cleaning process the temperature has not been over **X°F** for at least **Y minutes**, the following alarm will occur.



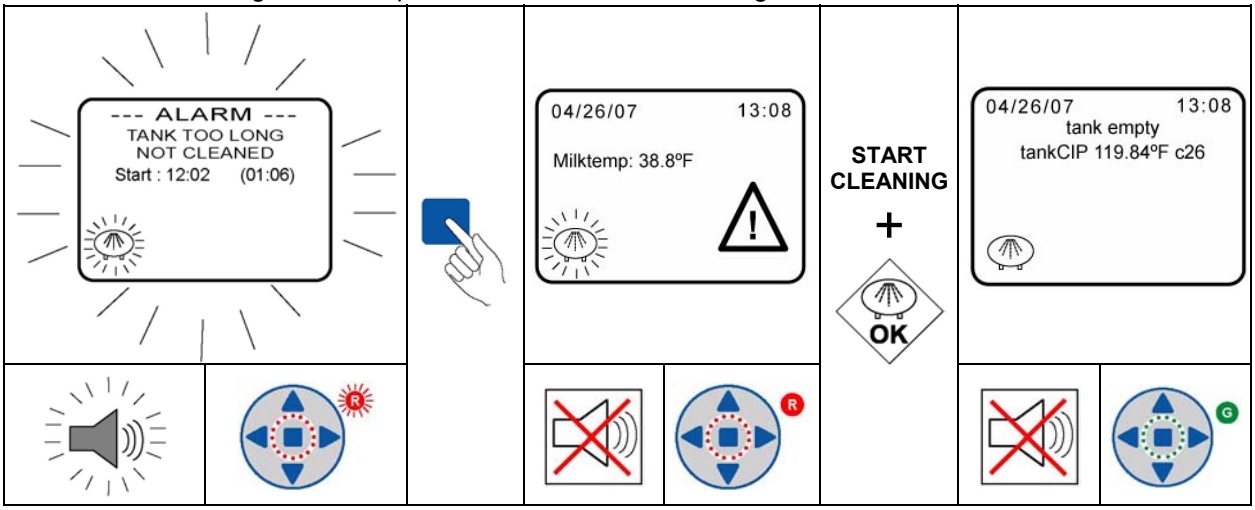

***Insufficient cleaning agent (optional)***

If during the cleaning process the conductivity of the cleaning water from the main cleaning process has been insufficient, the following alarm will occur

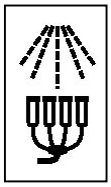



***TANK HAS NOT BEEN CLEANED:***

If no cleaning has taken place for **X hours**, the following alarm will occur.



## 2.2.6 - Pipe cleaning indication (optional)

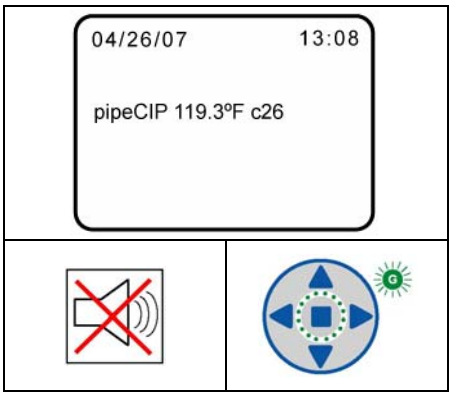


The pipe cleaning symbol will appear as soon as the start from the pipeline cleaning has been detected. The function is warning in situations requiring attention as well as in situations that trigger an alarm.

The possible warnings include:

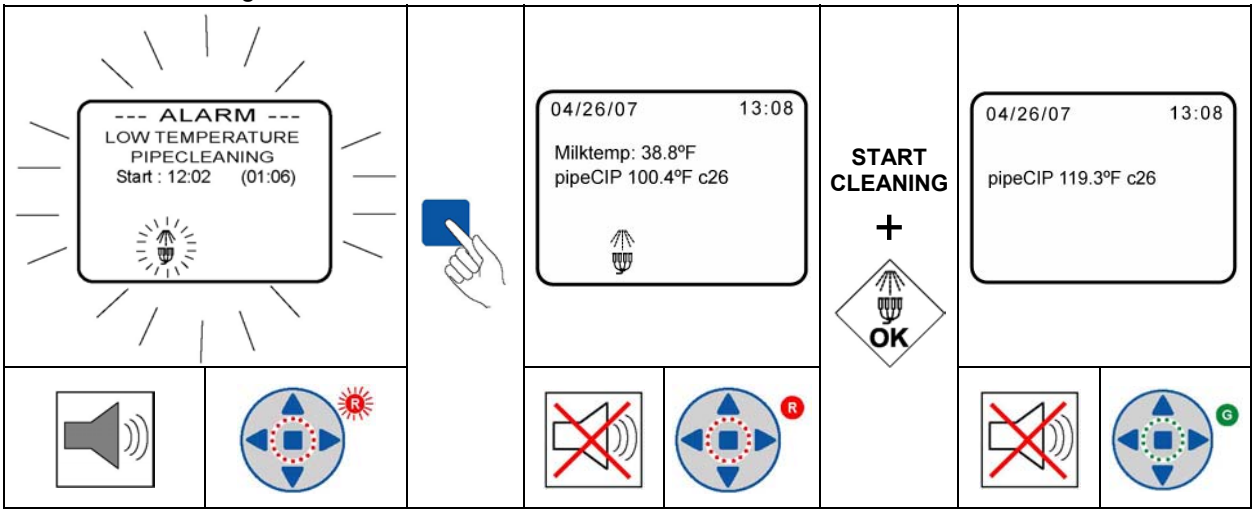
***Sufficiently cleaned, pre-indication***

This situation will occur when during the pipe cleaning process the temperature has been over 104ºF for more than **Y minutes**. With the conductivity sensor attached (optional[1]), the conductivity of the cleaning water must also be sufficient to trigger this situation.




***Cleaning temperature too low***

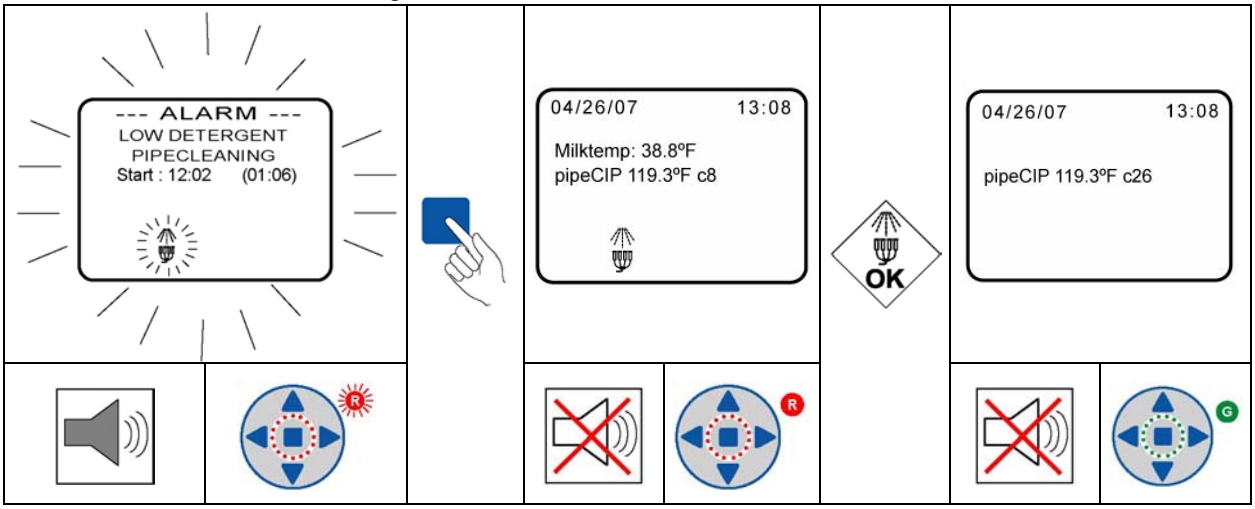
If during the pipe cleaning process the temperature has not been over **XºF** for at least **Y minutes**, the following alarm will occur.




[1] Only if a conductivity sensor has been connected

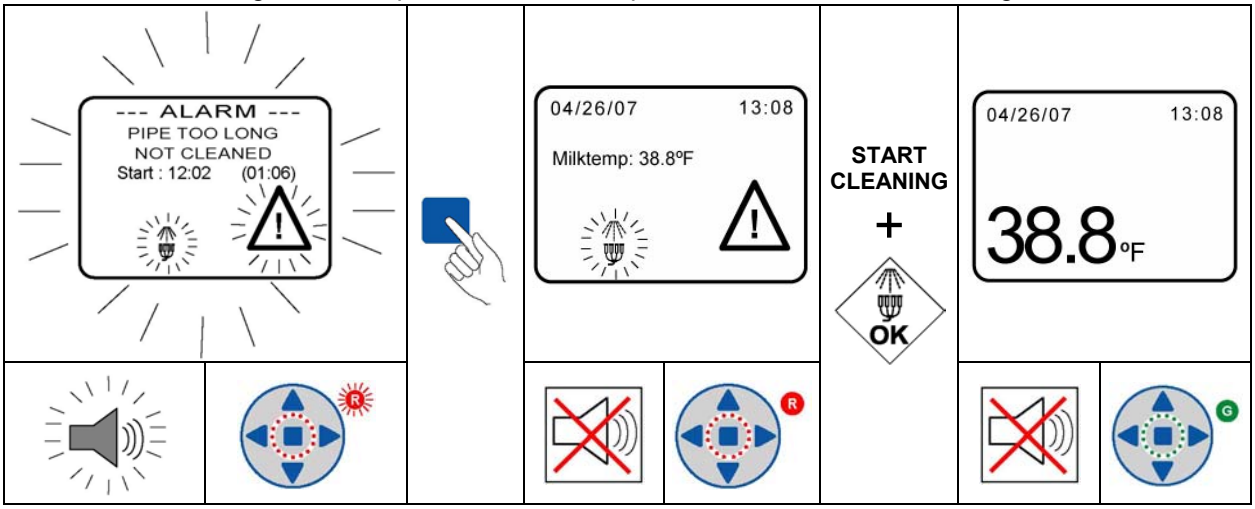
***Insufficient cleaning detergent (optional), producer alarm***

If during the cleaning process the conductivity of the cleaning water has not reached the value set in menu 10, the following alarm will occur




***PIPE HAS NOT BEEN CLEANED***

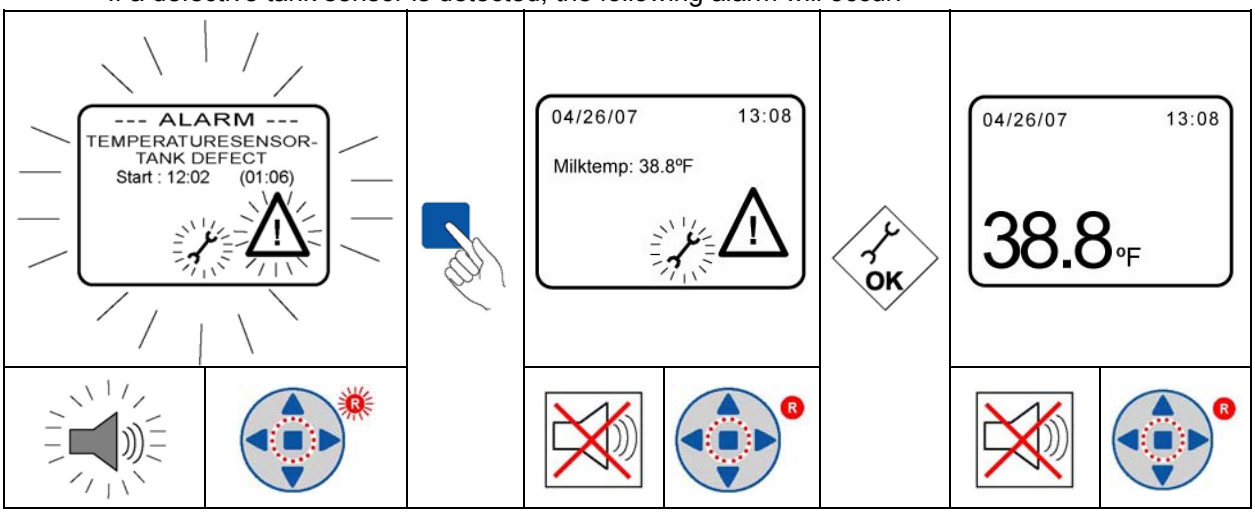
If no cleaning has taken place within the set period in the menu, the following alarm will occur.



## 2.2.7 – Monitoring the overall operation

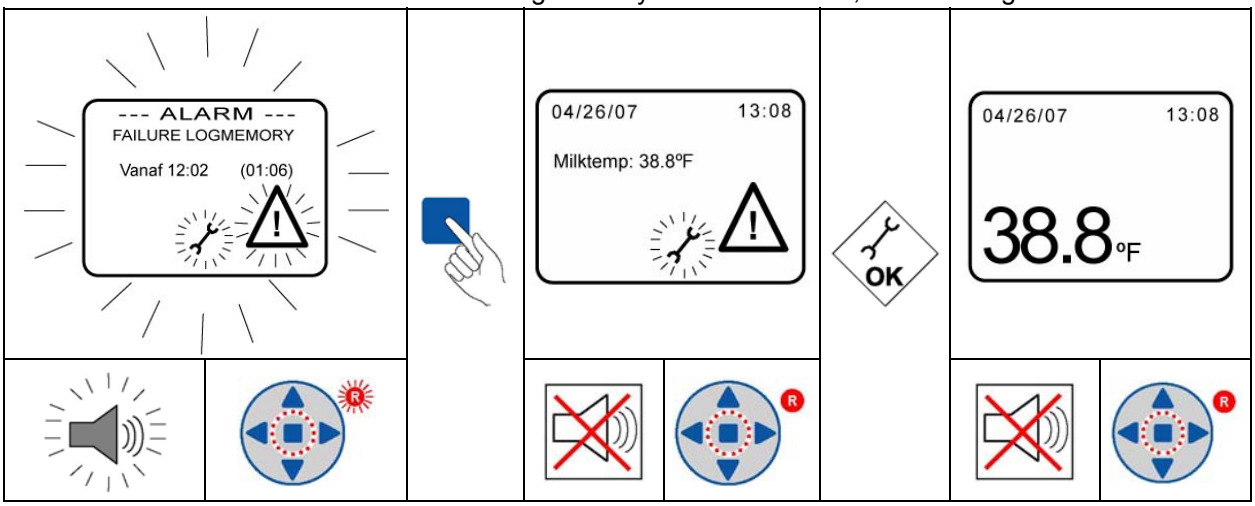
***DEFECTIVE TANK SENSOR (Please call dealer to replace sensor)***

If a defective tank sensor is detected, the following alarm will occur.

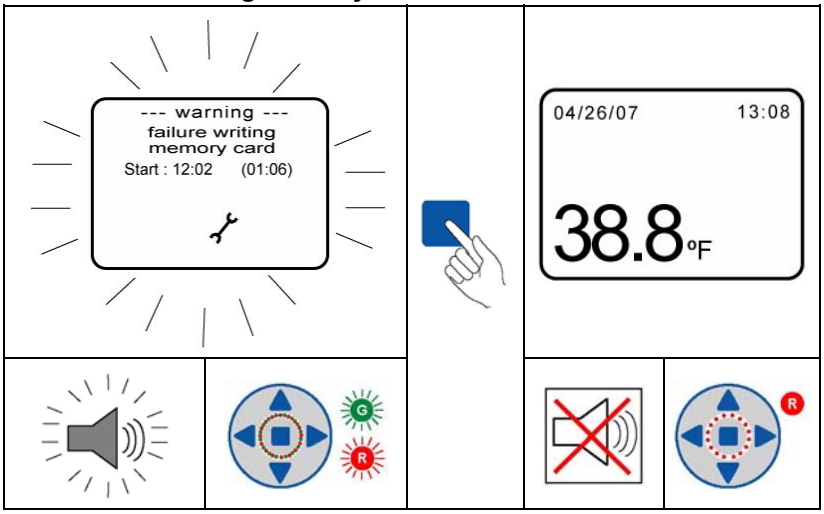



***DEFECTIVE LOG MEMORY (Please call dealer to replace sensor)***

If a failure occurred in the internal log memory of the MilkGuard, the following alarm will occur.



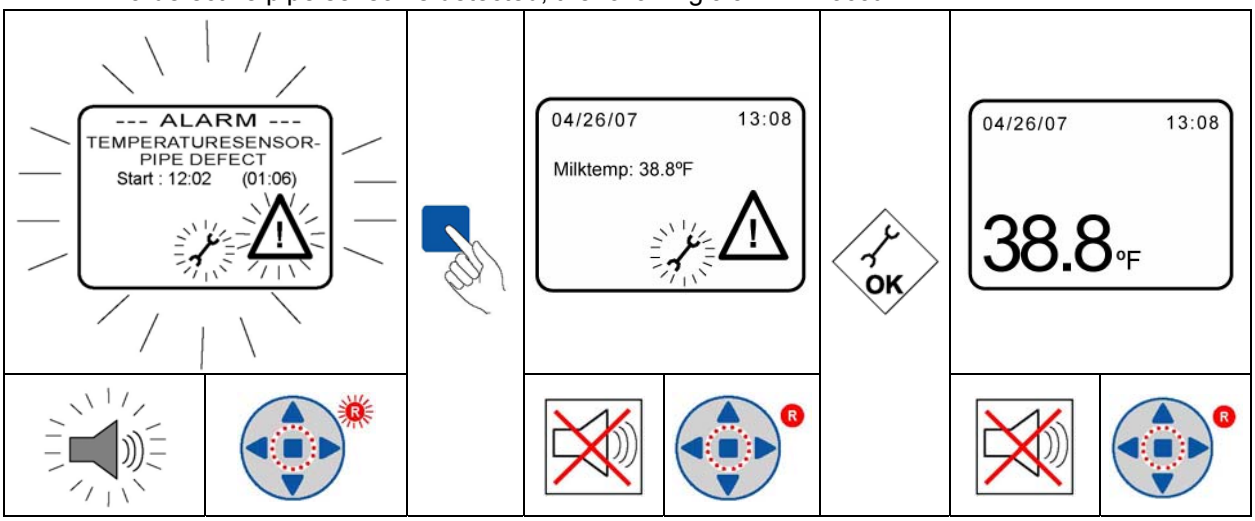

***DEFECTIVE writing memory card***[1]




[1] Only if memory card has been connected (optional)

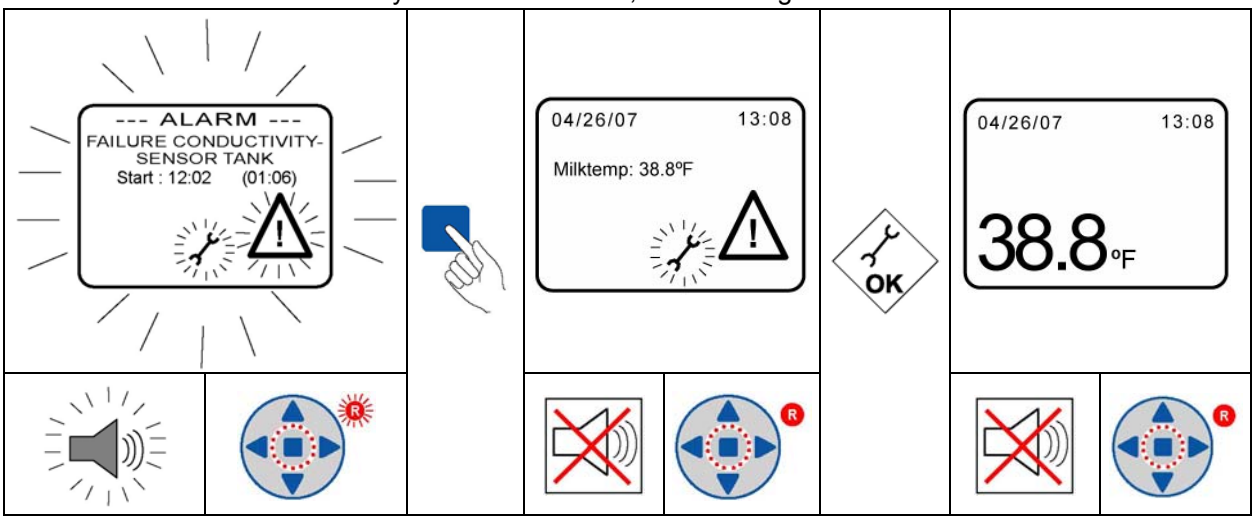
***DEFECTIVE PIPE SENSOR[1] (Please call dealer to replace sensor)***

If a defective pipe sensor is detected, the following alarm will occur.



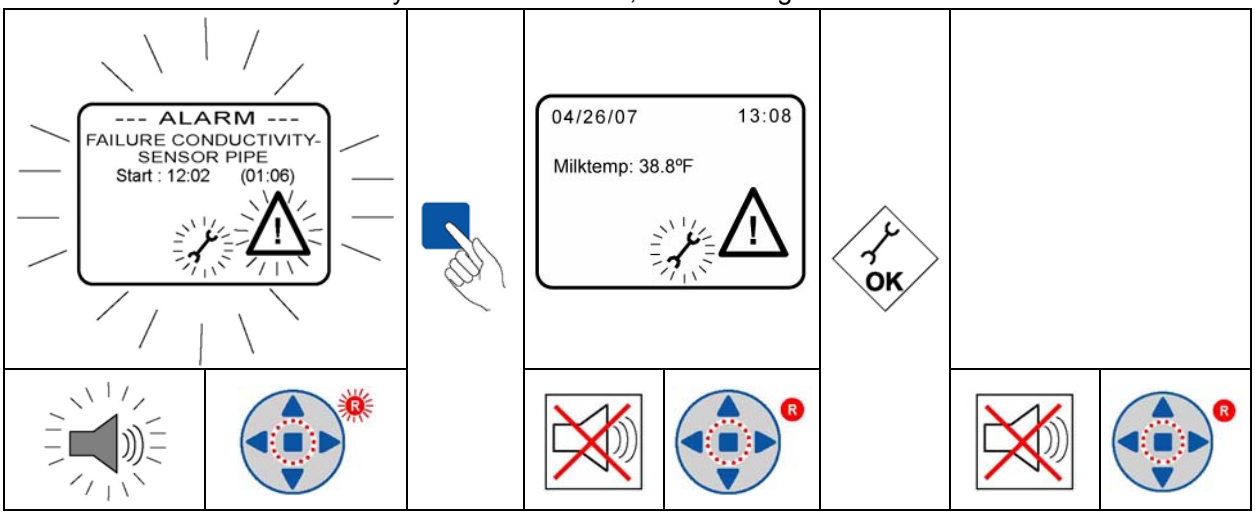

***DEFECTIVE CONDUCTIVITY SENSOR TANK [2] (Please call dealer to replace sensor)***

If a defective conductivity sensor is detected, the following alarm will occur.




***DEFECTIVE CONDUCTIVITY SENSOR PIPE[3] (Please call dealer to replace sensor)***

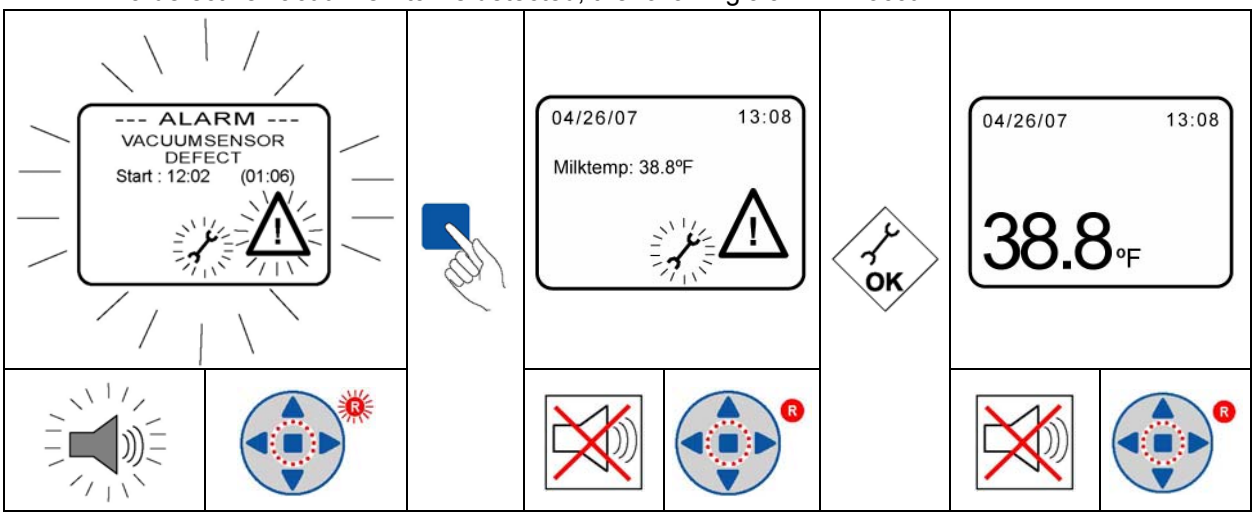
If a defective conductivity sensor is detected, the following alarm will occur.




[1] Only if a pipe sensor has been connected
[2] Only if a conductivity sensor voor de tank has been connected
[3] Only if a pipe sensor and a conductivity sensor for the milk pipe have been connected

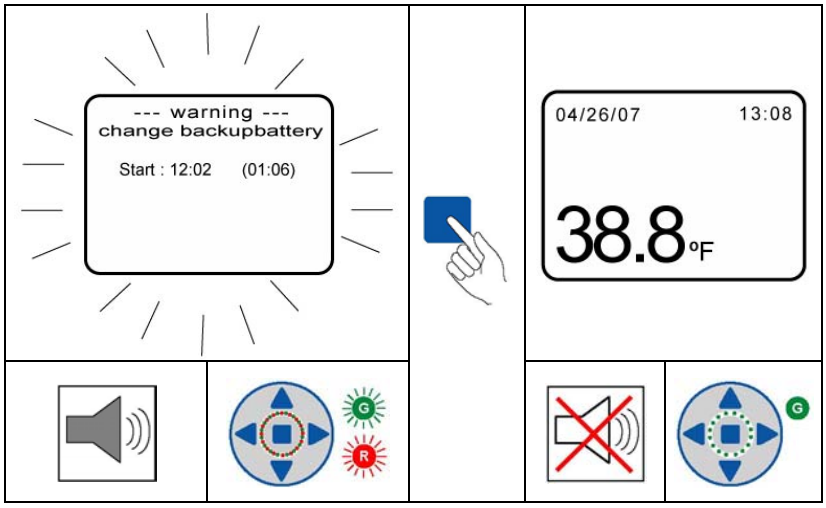
***DEFECTIVE VACUUM SWITCH (Please call dealer to replace sensor)***

If a defective vacuum switch is detected, the following alarm will occur.




***Low voltage backup battery***

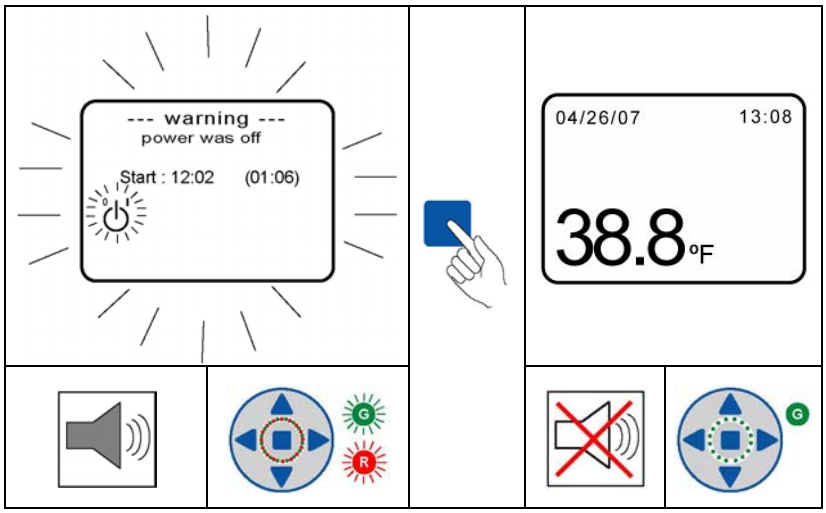
If the voltage of the internal backup battery is getting weak and the battery needs replacing, the following alarm will occur.



## 2.2.8 – Power interruption

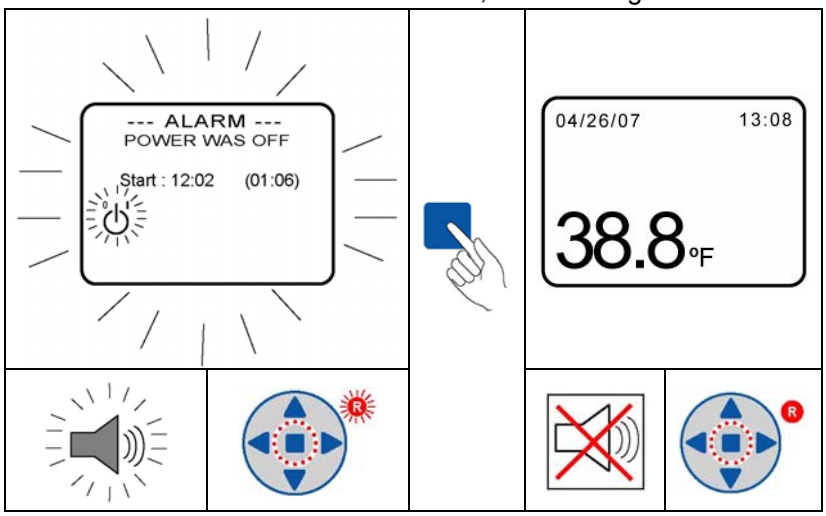
***producer alarm***

When a power failure lasted for more than 60 seconds but no more than **X hours**, the following alarm will occur.



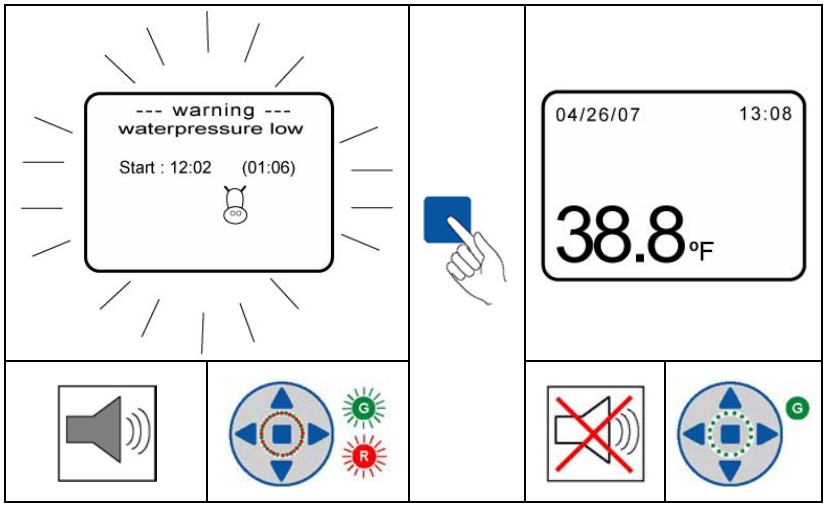

***CRITICAL ALARM***

When a power failure lasted for more than **X hours**, the following alarm will occur.




## 2.2.9 – Remaining Alarms

Waterpressure low

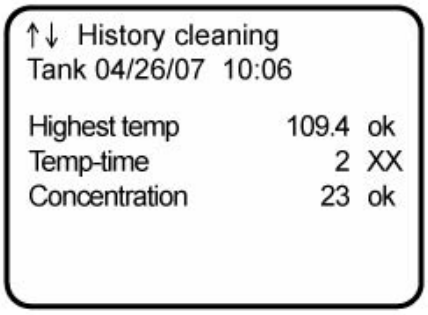


## 2.3 - Information

The information menus allow certain up-to-date information to be called up immediately on the display. These menus are directly activated from the monitor mode via the arrows. The following information can be called up.

### 2.3.1 – Data last cleaning processes

This menu displays the data of all cleaning processes in the last both for the tank and for the milk pipe[1], including the conductivity sensors[2], including the duration that the temperature has been above minimum adjusted values

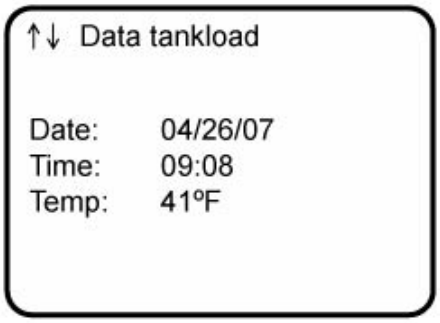



→ Starting time of the latest tank cleaning

→ Maximum reached temperature, ok or XX
→ duration that the temperature has been above adjusted value, ok or XX
→ Maximum reached conductivity value, ok or XX

### 2.3.2 - Data tankload

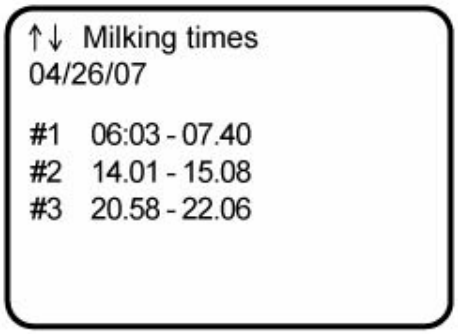
This menu shows the data of the tankload, the time of tankloading, and the temperature of the milk during tankloading. Data of the last month can be shown.




→ Date that milk has been collected
→ Time that milk has been collected
→ Temperature of the milk during loading

### 2.3.3 Data milking times[3]

This menu shows the milking times per day The starting and stopping times of the milking will be shown. Data of the last month can be shown.




→ Date of milkings

→ Start and ending time 1st milking
→ Start and ending time 2nd milking
→ Start and ending time 3rd milking

[1] Only if a milk line sensor has been connected
[2] Only if conductivity sensors have been connected
[3] Only if vacuum sensors has been connected

### 2.3.4 Critical alarms of the present tankload

This menu shows all critical alarms, during the present tankload. This menu helps the tanker collection driver to determine the quality of the milk in the tank. As soon as the tank is empty, this menu will be erased.

04 = number of alarms that have occurred

### 2.3.5 All alarms in the last month

Directly from the monitor mode Key ↓ to display all alarms in the last month.

06= number of alarms that have occurred

To exit the menu, press Enter

## H3 - Safety

Always observe the following safety instructions:

- ***Operation***:
  All operators must be familiar with this manual. This documentation needs to be consulted in order to find the nature of the potential hazard and the actions which may have to be taken.
- ***Hygiene:***
  Observe the usual hygiene regulations in terms of milk processing for human consumption.
- ***Electricity***:
  Take utmost care when working on the electrical system of the MilkGuard. Allow only skilled personnel to work on this system.
- ***Water***:
  Do not use a high-pressure cleaner for cleaning parts; do not rinse MilkGuard parts with water; do not use caustic cleaning agents for cleaning the equipment. Only use a damp cloth for cleaning the MilkGuard.
- ***Guards***:
  Do not remove the guards or open cupboard doors other than for maintenance. In that case, always observe the safety measures.
- ***General safety***:

***A switch or circuit-breaker shall be included in the building installation:***

- ***It shall disconnect both current-carrying conductors***
- ***It shall be in close proximity to the equipment and within easy reach of the operator***
- ***It shall be marked as the disconnecting device of the equipment.***

In the event of repairs to the MilkGuard remember the following warning:

***The MilkGuard must be isolated or disconnected from the hazardous live voltage, before access inside. So, always turn the main power supply off before doing any work on the MilkGuard.***

## H4 - Transport and storage

During transport and storage the equipment must be adequately packed, i.e. impact resistant and protected against moist, dust or other harmful substances.

The minimum storage conditions are as follows:

- Clean and dust-free environment
- Away from caustic and corrosive substances and gases
- Air humidity between 10 and 90%

Any transport and storage activities other than ordered by DairyCheq are at the owner's risk and are not covered by the DairyCheq warranty.

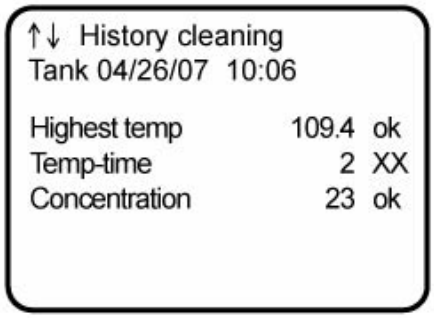
# H5 - Operation

See also the quick reference operating instruction card in the appendix of this manual.

## 5.1 - Information screens

### 5.1.1 - Data of the latest cleaning

In the monitor mode, press ▲ to call up the screen showing details of the latest cleaning:



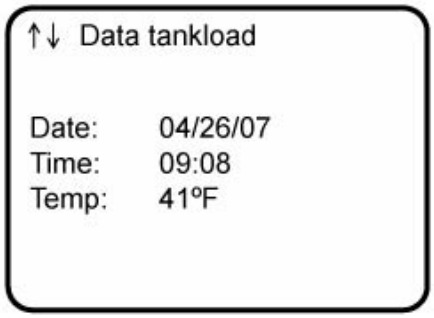

Press ▲ or ▼ to browse through data of the last month

Press ▶ or ◀ to switch between the screen “tank” and “milk pipe”[1].

To exit the menu, press Enter ■

### 5.1.2 - Data tank load

In the monitor mode, press ▶ to call up the screen showing the tank load.

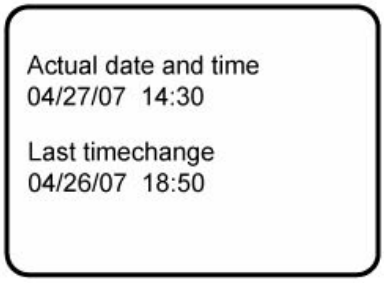



Press ▲ or ▼ to browse through data of the last month

To exit the menu, press Enter ■

### 5.1.3 - Time information

In the monitor mode, press 3 x ▶ again to call up the screen showing the time information.

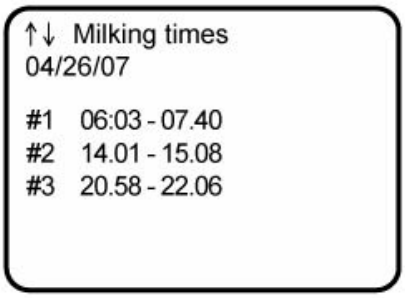



To exit the menu, press Enter ■

[1] Only if a milk line sensor has been connected

### 5.1.4 - Data milking times[1]

In the monitor mode, press 2 x ▶ to call up the screen showing the milking times.




Press ▲ or ▼ to browse through the data of the last month

To exit the menu, press Enter ■

### 5.1.5 – Critical alarms of the present tankload

In the monitor mode, press ◀ to call up the screen showing the critical alarms of the present tankload.

Press ▲ or ▼ to browse through the alarms

To exit the menu, press Enter ■

### 5.1.6 - All alarms in the latest month

In the monitor mode, press ▼ to call up the screen showing the alarms that were triggered during the latest month.

Press ▲ or ▼ to browse through the alarms

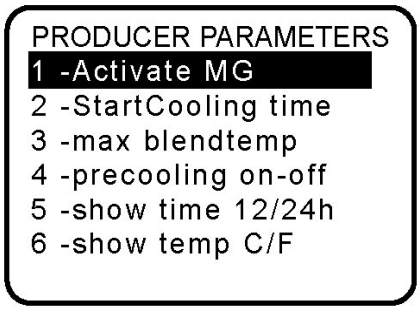
To exit the menu, press Enter ■

[1] Only if a vacuum sensor has been connected

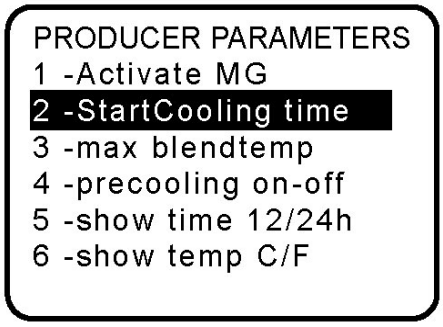
## 5.2 - Changing the producer parameters

The producer is allowed to change a limited number of settings. The procedure is as follows:

1. In the monitor mode, press and hold the key for 2 seconds.
   - ➢ You are now entering the main menu programming

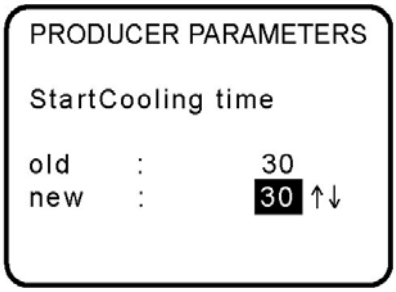



2. Press or to browse through the menu

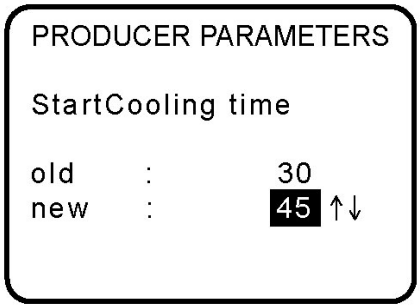



   - ➢ See appendix A for an explanation of the various submenus

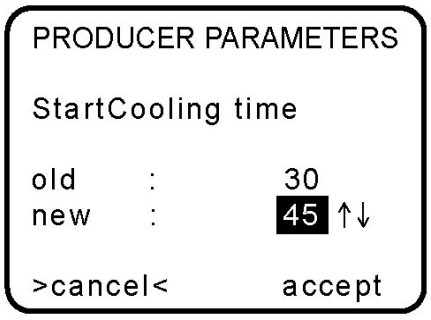
3. Press to activate the selected menu item




4. Press or to change the value of the active menu

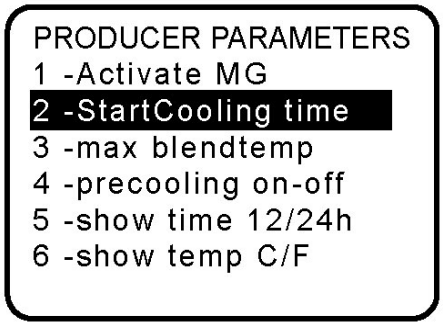



5. To exit the menu, press Enter



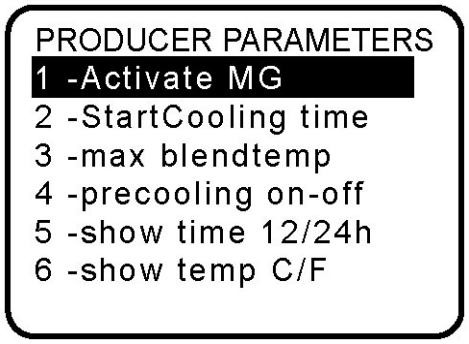

6. Press ▶ or ◀ to “cancel” or “accept”.
   - Selecting cancel will not save the new value.
   - Selecting accept will save the new value

7. Press Enter ■ to acknowledge




Exit the menu as follows and return to the monitor mode:

8. Press ▲ until menu 1 is selected




9. Press Enter ■ to activate the MilkGuard and return to the monitor mode

## 5.3 – Milk Tank Truck Driver

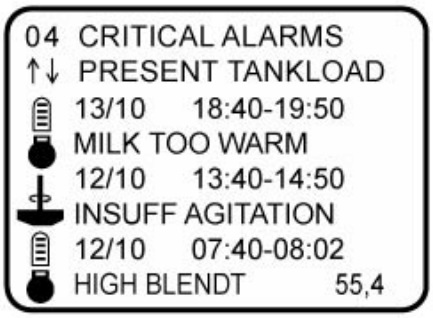
The MilkGuard helps to evaluate the quality of the milk in the tank, before it is taken away, as follows:

Check the LED on the front of the MilkGuard

1. **Green light is on:**
   Empty the tank: the MilkGuard has not observed any critical irregularities

2. **Red light is on:**
   Evaluate the observed critical alarms as follows:

Press ◀ to call up the screen showing the critical alarms of the present tank load.




Press ▲ or ▼ to browse through the alarms

To exit the menu, press Enter ■

Use the provided information to assess the quality of the milk in the tank.

## H6 - Maintenance

For maintenance of the MilkGuard, please observe the following general rules:

- Keep the area for the MilkGuard frost-free.
- Keep the area clean and dust-free.
- Keep the air humidity between 10 and 90%; make sure the area is properly ventilated, keeping the electrical parts dry.
- Make sure that all components remain dry and prevent splashing water and dirt from the floor.
- Keep the MilkGuard away from explosive, caustic or corrosive gases and substances; make sure that no alkaline or acid cleaning agent is used on the MilkGuard.
- Do not clean the MilkGuard with running water, but use a damp cloth instead.
- Your dealer will be able to give professional maintenance advice; regular checks by your dealer are recommended.

## H7 - Troubleshooting

| Symptom | Fault | Cause | Solution |
|---|---|---|---|
| MilkGuard asks for cleaning while the tank contains milk. | MilkGuard is not able to accurately detect the level inside the tank due to large fluctuations in temperature. | Hot milk flows into the tank near the MilkGuard sensor | Move the milk inlet at least 18” away from the sensor. |
| | | | Activate the agitator before the start of milking at all milk cycles |
| MilkGuard is not responding, display remains blank. | No supply voltage | Unknown | Connect to supply voltage |
| | Defective fuse | Too many fluctuations in supply voltage (e.g. power surges) | Provide stable supply voltage within the required range |
| | | Unknown | Replace fuse with exactly the same type. Contact your dealer if the problem recurs |
| Temperature alarm triggered when tank is empty or during the pre-rinse phase of the cleaning process | Ice on the tank floor after milk has been removed | The cooler is making ice on the tank floor | Contact the supplier of the cooler |
| False alarm Start Cooling during 1st milking cycle | Alarm is triggered while the cooling machine is on | Cooling machine has been turned on early | Delay the cooling process |
| | | | Reduce the period in menu 2 (time setting to monitor the cooling machine) |
| | | Pre-cooling caused temperature to drop fast at the start | Reduce the period in menu 2 (time setting to monitor the cooling machine) |
| Other faults in the operation of the MilkGuard | Unknown | Unknown | Contact your MilkGuard dealer |

## H8 - Scrap

Discard any scrap parts in compliance with the current local regulations for waste materials.

# Appendices

## Appendix A: Producer preference settings

The producer will be able to change the following settings:

| Menu | Menunaam | Explanation | Set up Range |
|---|---|---|---|
| 1 | Activate MG | | |
| 2 | StartCooling time | After detecting the first milk in the tank, the moment when the MilkGuard checks that cooling has been turned on. | 20-600min |
| 3 | max blendtemp | Producer alarm maximum allowed blend temperature of the milk, from the 2nd milking cycle | 42.8-104ºF |
| 4 | precooling on/off | Pre-cooler present yes/no? When “yes” the MilkGuard checks that the pre-cooler has been turned on | On/Off |
| 5 | show time 12/24h | Time display on 24 or 12-hour (am/pm) clock | 12h/24h |
| 6 | show temp C/F | Temperature display °C/F | deg. C/F |
| 7 | language | Language used for alarms and screen menus | |
| 8 | No fill time | At this moment, following the start of the 1st milking cycle, the tank level is being checked. | 30-900 min |
| 9 | TCIP low cond | Minimum conductivity value to be reached during tank cleaning | 5-50 |
| 10 | PCIP low cond | Minimum conductivity value to be reached during pipe cleaning | 5-50 |
| 12 | min milkTemp | Minimum temperature of the milk (producer alarm) | 32-41ºF |
| 13 | min milkTempTime | Length of time the temperature may be below the value set in menu 12 (producer alarm). | 1-120 min |
| 14 | Tank noclean time | Maximum time wherein the tank cleaning must have been started after the tank was emptied | 15-600 min |
| 18 | non-agit cycle | Maximum time between two agitation cycles with cold milk, producer alarm | 30-5000min |
| 19 | max agit time | Maximum agitation time in one cycle, producer alarm | 60-5000 min |
| 20 | time: hour | Current time setting: hours | 0-23 hrs |
| 21 | time: minute | Current time setting: minutes | 0-59 min |
| 30 | actual Temps | Shows the current values of all temperature sensors | |
| 31 | Actual conduct | Shows the current values of all conductivity sensors | |
| 32 | test dig outputs | Tests all digital output ports | |
| 33 | test dig inputs | Tests all digital input ports | |
| 34 | test analog input | Tests analog ports | |
| 35 | actual limits | Shows the current threshold limit values | |
| 36 | battery voltage | Shows the current battery voltage | > 2.7V |
| 37 | Write memory card[1] | Write data of last week on memory card | |
| 48 | Systeminfo | Shows system information, such as software versions, and the GPRS situation and signal quality | |
| 49 | load user default | Resets all the above back to the default settings | |

[1] Only if a memory card has been connected (optional)

# Appendix B: Quick reference card MilkGuard incl. alarm list

## User Chart MilkGuard FD V4.2

| Alarm symbols | DISPLAY | |
|---|---|---|
| | 38.3ºF | • No alarm situation at this point in time<br>• No alarm occurred during current tank fill |
| | TankCIP 118.94ºF c26* | • Latest tank cleaning was OK |
| | PipeCIP 118.94ºF c26** | • Latest pipe cleaning was OK |
| | wait for tankclean | • Tank is empty, yet to be cleaned |
| | 38.3ºF | • No alarm situation at this point in time<br>• A CRITICAL alarm occurred during current tank fill |
| | milktemp 38.3ºF | • A confirmed alarm situation exists at this point in time |
| | ---warning--- | • A pre-alarm has occurred. Press ■<br>• ***Consult your milkmachine dealer*** when a milk pipe alarm* occured |
| | ---ALARM--- | • A CRITICAL alarm has occurred. Press ■ |

* Only if a milk line sensor has been connected  * Only if a conductivity sensor has been connected

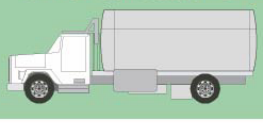
**Calling up information:**

▲ = details of cleaning last month
▼ = all alarms of most recent month
◀ = CRITICAL alarms current tank fill
▶ = Temperature tankload last month

**Setting the user parameters**

1 - On the front, from the monitor mode press and hold ■ key for 5 seconds.
2 - Press ▲ or ▼ to browse through the menu
3 - Press ■ to confirm the selected menu/item.
4 - Press ▲ or ▼ to change the value of the activated menu.
5 - Press ■ to exit the menu.
6 - Press ▶ or ◀ to select "cancel" or "accept".
7 - Press ■ to confirm the selection.
8 - Press ▲ until menu 1 "activate MilkGuard" has been selected.
9 - Press ■ to activate the MilkGuard and return to the monitor menu.

**Tanker collection driver**



1 Check that the red or green LED is on.
2 If the red light is on, press ◀.
3 Check the alarms of the current tank fill on the display and decide whether or not the tank fill is safe to collect

*The Meko MilkGuard is a tool to monitor the cooling and cleaning process only. The end-user will remain responsible for the storage of the milk and the proper operation of the cooling and cleaning equipment at all times.*

**DairyCheq Inc.**
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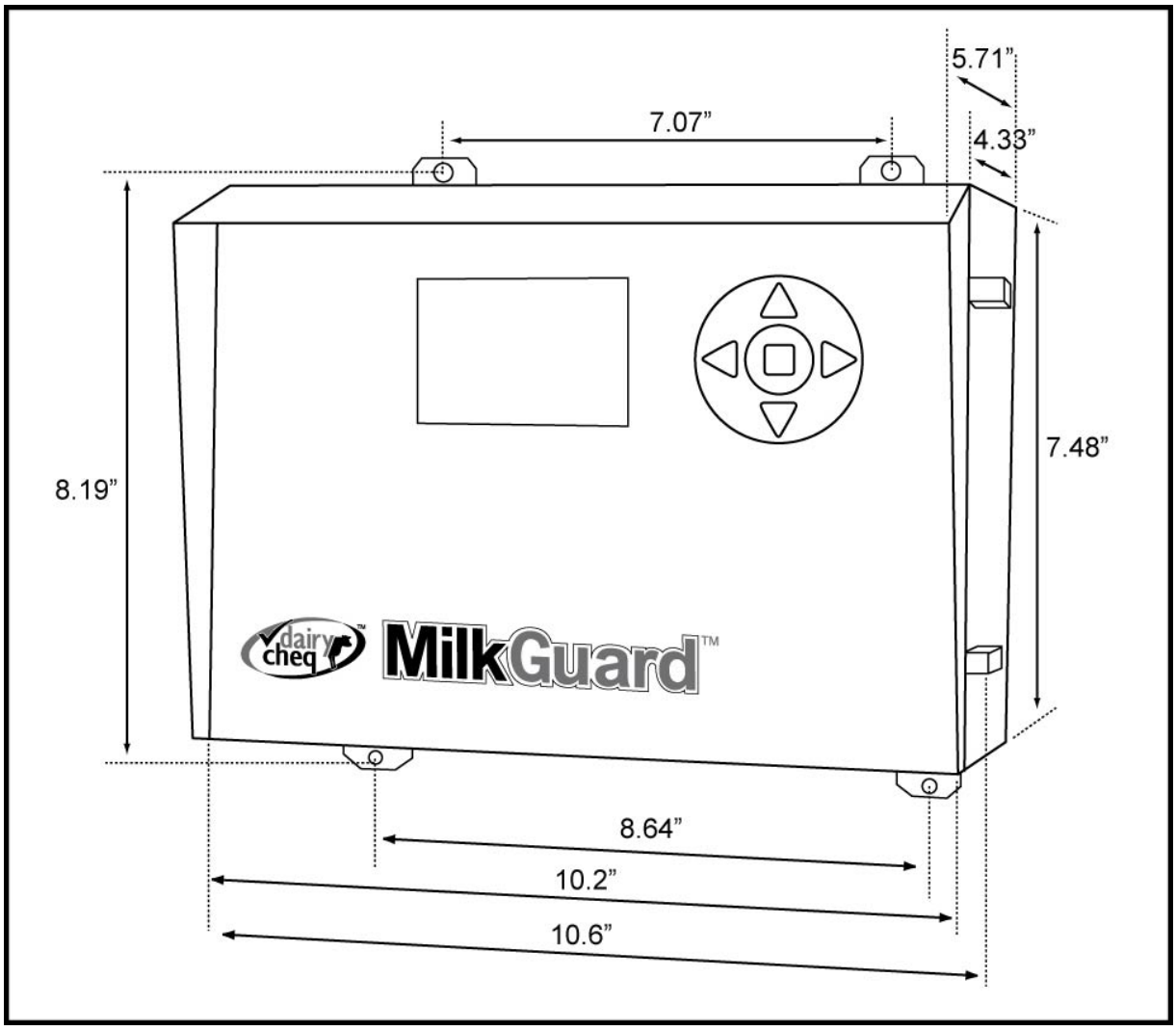
*June 2007*

# Appendix C: Technical specifications

General:

| | | |
|---|---|---|
| Casing material | : | Stainless steel 304 |
| Weight | : | 5,51 Lbs |




Electrical

| | |
|---|---|
| Supply voltage | 1 phase 100-240VAC, 50/60Hz, wiresize at least 14 gauge blue=neutral / brown=phase |
| Earth connection | To be connected only to a system with appropriate protective earthing, wiresize at least 14 gauge |
| Power consumption | 25VA |
| Internal fuse supply voltage | 6.3 AT |
| External fuse supply voltage | >1A |
| Output relay | Max 240VAC, 3A |